AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A method for accomplishing state transitions in a configurable linear feedback shift register (LFSR) controlled by a clock ~~(310)~~, the length of the LFSR being represented by N, wherein a state vector ~~(330)~~ represents the state of the LFSR, an output ~~(340)~~ of the LFSR comprising W output symbols, W being at least two, and the output symbols being generated during one clock cycle, a state transition of the LFSR being accomplished during one clock cycle via multiplication of the state vector by a state transition matrix ~~(350)~~ to the power of W (multiple state transition matrix), characterized in that said multiple state transition matrix is decomposed in a first matrix ~~(360)~~ and a second matrix ~~(370)~~, the first matrix comprising at most $N + W + 1$ different expressions and the second matrix comprising at most $N + W + 1$ different expressions, wherein the elements of the second matrix are defined by:

$$G_{i,j} = \begin{cases} 1 & , \text{if } i - j = W \\ g_{i+j-N+1} & , \text{if } (i + j \geq N - 1) \wedge (j \geq N - W) \\ 0 & , \text{otherwise} \end{cases}$$

and the elements of the first matrix are defined by:

$$P_{i,j} = \begin{cases} 1 & \text{, if } i = j \wedge i < N - W \\ p_{i+j-2N+W+1} & \text{, if } i + j \geq 2N - W - 1 \\ 0 & \text{, otherwise} \end{cases}$$

wherein $p_0 = 1$, $p_i = \sum_{j=0}^{i-1} g_{N-i+j} p_j$ for $0 < i < N$, and g_0, g_1 up to and including g_{N-1} represent the configuration symbols which are comprised in the state transition matrix.

2. (Currently Amended) A method according to claim 1, wherein the expressions of the first matrix ~~(360)~~ are evaluated during a configuration stage of the operation of the LFSR.

3. (Canceled)

4. (Currently Amended) A configurable linear feedback shift register (LFSR) controlled by a clock ~~(310)~~, the length of the LFSR being represented by N, a state vector ~~(330)~~ representing the state of the LFSR, the LFSR being arranged to generate an output ~~(340)~~ comprising W output symbols, W being at least two, to generate the output symbols during one clock cycle, the LFSR comprising multiplication means for accomplishing a state transition of the LFSR during one clock cycle via multiplication of the state vector by a state transition matrix ~~(350)~~ to the power of W (multiple state transition matrix), characterized in that said multiple state transition matrix is

decomposed in a first matrix ~~(360)~~ and a second matrix ~~(370)~~, the first matrix comprising at most $N + W + 1$ different expressions and the second matrix comprising at most $N + W + 1$ different expressions, wherein the elements of the second matrix are defined by:

$$G_{i,j} = \begin{cases} 1 & , \text{if } i - j = W \\ g_{i+j-N+1} & , \text{if } (i + j \geq N - 1) \wedge (j \geq N - W) \\ 0 & , \text{otherwise} \end{cases}$$

and the elements of the first matrix are defined by:

$$P_{i,j} = \begin{cases} 1 & , \text{if } i = j \wedge i < N - W \\ p_{i+j-2N+W+1} & , \text{if } i + j \geq 2N - W - 1 \\ 0 & , \text{otherwise} \end{cases}$$

wherein $p_0 = 1$, $p_i = \sum_{j=0}^{i-1} g_{N-i+j} p_j$ for $0 < i < N$, and g_0, g_1 up to and including g_{N-1} represent the configuration symbols which are comprised in the state transition matrix.

5. (Currently Amended) A configurable linear feedback shift register (LFSR) according to claim 4, characterized in that the multiplication means comprises a first set ~~(402)~~ of logical units ~~(408, 410)~~ for performing the multiplication of the state vector ~~(330)~~ by the second matrix ~~(370)~~ and a second set ~~(406)~~ of logical units ~~(416, 418)~~ for performing the multiplication of the state vector by the first matrix ~~(360)~~.

6. (Currently Amended) A configurable linear feedback shift register (LFSR) according to claim 5, characterized in that the LFSR comprises a third set ~~(404)~~ of logical units ~~(412, 414)~~ for computing the first matrix ~~(360)~~.

7. (Currently Amended) A configurable linear feedback shift register (LFSR) according to claim 6, characterized in that the third set ~~(404)~~ of logical units ~~(412, 414)~~ is arranged to perform the computation of the first matrix ~~(360)~~ during a configuration stage of the operation of the LFSR.

8. (Currently Amended) A configurable linear feedback shift register (LFSR) according to claim 7, characterized in that the second set ~~(406)~~ of logical units ~~(416, 418)~~ is coupled to the first set ~~(402)~~ of logical units ~~(408, 410)~~ via an intermediate data register ~~(710)~~.